<u>WHAT IS CLAIMED IS</u>:

1   1.   A method for transferring data using multiple backup components,

2   comprising:

3   assigning responsibility for a portion of data to a first backup component; and

4   when a data update for the portion of data is received at the first backup

5   component from a primary source, mirroring the data update to a second backup

6   component that is not assigned responsibility for the portion of data.

1   2.   The method of claim 1, further comprising:

2   when the data update for the portion of data is received at the second backup

3   component that is not assigned responsibility for the portion of data from the primary

4   source, forwarding the data update to the first backup component.

1   3.   The method of claim 1, further comprising:

2   when the data update for the portion of data is received at the first backup

3   component from the second backup component that is not responsible for the portion of

4   data,

5   assigning a sequence number to the data update; and

6   acknowledging receipt of the data update by sending the sequence number

7   to the second backup component.

1   4.   The method of claim 1, further comprising:

2   when the data update for the portion of data is received at the second backup

3   component that is not responsible for the portion of data, storing the data update.

1   5.   The method of claim 1, wherein the first backup component and the

2   second backup component communicate over a first communication path and wherein the

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1 first backup component and second backup component communicate with the primary

2 source over a second communication path.

1 6.   The method of claim 1, wherein the first backup component, the second

2 backup component, and the primary source communicate over one communication path.

1 7.   The method of claim 1, further comprising:

2 wherein each of the multiple backup components maintains a mapping of which

3 backup component is assigned to particular portions of data.

1 8.   The method of claim 1, wherein when one of the multiple backup

2 components mirrors the data update to another backup component, further comprising:

3 sending a sequence identifier with the mirrored data update; and

4 keeping track of which backup component was sent the data update.

1 9.   The method of claim 1, wherein when one of the multiple backup

2 components receives a mirrored data update from another backup component, further

3 comprising:

4 receiving a sequence identifier with the mirrored data update; and

5 keeping track of which backup component sent the data update.

1 10.   A method for processing data updates with a group of backup

2 components, comprising:

3 determining that a new backup component is active;

4 near an end of a consistent transactions set formation period, assigning

5 responsibility for one or more portions of data to each backup component in the group

6 and to the new backup component; and

1   during a next consistent transactions set formation period, processing data updates

2 with each backup component in the group and the new backup component.

1   11.   The method of claim 10, wherein the new backup component becomes

2 part of the group of backup components.

1   12.   A method for processing data updates with a group of backup

2 components, comprising:

3   determining that a first backup component in the group is no longer available; and

4   reassigning portions of data for which the first backup component had been

5 assigned responsibility to each of the other backup components in the group.

1   13.   The method of claim 12, wherein each of the backup components in the

2 group that was mirroring data updates for the first backup component mirrors the data

3 updates to the backup components that were assigned responsibility for the portions of

4 data to which the data updates were made.

1   14.   The method of claim 12, wherein each of the backup components that is

2 reassigned a portion of data and that has data updates for the portion of data mirrors the

3 data updates to another backup component.

1   15.   The method of claim 12, wherein each of the backup components in the

2 group that had mirrored data to the first backup component mirror data updates to another

3 backup component.

1   16.   An article of manufacture including program logic for transferring data

2 using multiple backup components, wherein the program logic causes operations to be

3 performed, the operations comprising:

4   assigning responsibility for a portion of data to a first backup component; and

5   when a data update for the portion of data is received at the first backup

6 component from a primary source, mirroring the data update to a second backup

7 component that is not assigned responsibility for the portion of data.

1   17.   The article of manufacture of claim 16, wherein the operations further

2 comprise:

3   when the data update for the portion of data is received at the second backup

4 component that is not assigned responsibility for the portion of data from the primary

5 source, forwarding the data update to the first backup component.

1   18.   The article of manufacture of claim 16,wherein the operations further

2 comprise:

3   when the data update for the portion of data is received at the first backup

4 component from the second backup component that is not responsible for the portion of

5 data,

6   assigning a sequence number to the data update; and

7   acknowledging receipt of the data update by sending the sequence number

8 to the second backup component.

1   19.   The article of manufacture of claim 16,wherein the operations further

2 comprise:

3   when the data update for the portion of data is received at the second backup

4 component that is not responsible for the portion of data, storing the data update.

1   20.   The article of manufacture of claim 16, wherein the first backup

2   component and the second backup component communicate over a first communication

3   path and wherein the first backup component and second backup component

4   communicate with the primary source over a second communication path.

1   21.   The article of manufacture of claim 16, wherein the first backup

2   component, the second backup component, and the primary source communicate over

3   one communication path.

1   22.   The article of manufacture of claim 16, wherein the operations further

2   comprise:

3   wherein each of the multiple backup components maintains a mapping of which

4   backup component is assigned to particular portions of data.

1   23.   The article of manufacture of claim 16, wherein when one of the multiple

2   backup components mirrors the data update to another backup component, and wherein

3   the operations further comprise:

4   sending a sequence identifier with the mirrored data update; and

5   keeping track of which backup component was sent the data update.

1   24.   The article of manufacture of claim 16, wherein when one of the multiple

2   backup components receives a mirrored data update from another backup component,

3   and wherein the operations further comprise:

4   receiving a sequence identifier with the mirrored data update; and

5   keeping track of which backup component sent the data update.

1   25.   An article of manufacture including program logic for processing data

2   updates with a group of backup components, wherein the program logic causes

3   operations to be performed, the operations comprising:

4   determining that a new backup component is active;

5   near an end of a consistent transactions set formation period, assigning

6   responsibility for one or more portions of data to each backup component in the group

7   and to the new backup component; and

8   during a next consistent transactions set formation period, processing data updates

9   with each backup component in the group and the new backup component.

1   26.   The article of manufacture of claim 25, wherein the new backup

2   component becomes part of the group of backup components.

1   27.   An article of manufacture including program logic for processing data

2   updates with a group of backup components, wherein the program logic causes

3   operations to be performed, the operations comprising:

4   determining that a first backup component in the group is no longer available; and

5   reassigning portions of data for which the first backup component had been

6   assigned responsibility to each of the other backup components in the group.

1   28.   The article of manufacture of claim 27, wherein each of the backup

2   components in the group that was mirroring data updates for the first backup component

3   mirrors the data updates to the backup components that were assigned responsibility for

4   the portions of data to which the data updates were made.

1   29.   The article of manufacture of claim 27, wherein each of the backup

2   components that is reassigned a portion of data and that has data updates for the portion

3   of data mirrors the data updates to another backup component.

1   30.   The article of manufacture of claim 27, wherein each of the backup

2   components in the group that had mirrored data to the first backup component mirror data

3   updates to another backup component.

1   31.   A system for transferring data using multiple backup components,

2   comprising:

3   means for assigning responsibility for a portion of data to a first backup

4   component; and

5   means for, when a data update for the portion of data is received at the first

6   backup component from a primary source, mirroring the data update to a second backup

7   component that is not assigned responsibility for the portion of data.

1   32.   The system of claim 31, further comprising:

2   means for, when the data update for the portion of data is received at the second

3   backup component that is not assigned responsibility for the portion of data from the

4   primary source, forwarding the data update to the first backup component.

1   33.   The system of claim 31, further comprising:

2   when the data update for the portion of data is received at the first backup

3   component from the second backup component that is not responsible for the portion of

4   data,

5   means for assigning a sequence number to the data update; and

1   means for acknowledging receipt of the data update by sending the

2   sequence number to the second backup component.

1   34.   The system of claim 31, wherein when one of the multiple backup

2   components mirrors the data update to another backup component, further comprising:

3   means for sending a sequence identifier with the mirrored data update; and

4   means for keeping track of which backup component was sent the data update.

1   35.   The system of claim 31, wherein when one of the multiple backup

2   components receives a mirrored data update from another backup component, further

3   comprising:

4   means for receiving a sequence identifier with the mirrored data update; and

5   means for keeping track of which backup component sent the data update.

1   36.   A system for processing data updates with a group of backup components,

2   comprising:

3   means for determining that a new backup component is active;

4   means for near an end of a consistent transactions set formation period, assigning

5   responsibility for one or more portions of data to each backup component in the group

6   and to the new backup component; and

7   means for during a next consistent transactions set formation period, processing

8   data updates with each backup component in the group and the new backup component.

1   37.   The system of claim 36, wherein the new backup component becomes part

2   of the group of backup components.

1   38.   A system of processing data updates with a group of backup components,

2   comprising:

3   means for determining that a first backup component in the group is no longer

4   available; and

5   means for reassigning portions of data for which the first backup component had

6   been assigned responsibility to each of the other backup components in the group.

1   39.   The system of claim 38, wherein each of the backup components in the

2   group that was mirroring data updates for the first backup component mirrors the data

3   updates to the backup components that were assigned responsibility for the portions of

4   data to which the data updates were made.

1   40.   The system of claim 38, wherein each of the backup components that is

2   reassigned a portion of data and that has data updates for the portion of data mirrors the

3   data updates to another backup component.

1   41.   The system of claim 38, wherein each of the backup components in the

2   group that had mirrored data to the first backup component mirror data updates to another

3   backup component.